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ABSTRACT

Locus of control is a construct that reflects an individual's perception of control over his or her own destiny. The thesis is that people adopt either an internal or an external orientation. Internally oriented persons consider success the result of ability and effort. Externally oriented individuals attribute success to luck, fate, or powerful others. There is sufficient research to document a relationship between locus of control and academic achievement. Just as one would expect students with higher I.Q. scores to outperform their lower scoring classmates, there is evidence to support the notion that internally oriented students outperform their externally oriented counterparts. This study explores the respective degrees of influence that each of these variables exercises upon the reading and mathematics achievement of third-, fourth-, and fifth-grade children (N=77) as measured by the California Achievement Tests. The data from the test performance of the intermediate students supported the results of previous studies with middle school students. The group of nongifted internals with a mean I.Q. of 120 produced the same test results in reading and mathematics as the gifted externals group with a mean I.Q. of 140. The data support the contention that internality is as accurate as I.Q. in predicting performance on standardized achievement tests. The data are displayed in nine tables. (JD)

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INTERNALITY AND ACHIEVEMENT IN THE INTERMEDIATE GRADES

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INTERNALITY AND ACHIEVEMENT IN THE INTERMEDIATE GRADES

INTRODUCTION

The purpose of this study was to examine the relative influences of intelligence and locus of control upon the reading and mathematics achievement of intermediate age students. Whereas intelligence is that compilation of knowledge and skills that are closely associated with school related tasks, locus of control is a construct that reflects and individual's perception of control over his or her own destiny. It is a concept that first emerged from social learning theory in an attempt to explain and examine components of human behavior (Phares, 1976). As early as 1954, psychologists began formulating determinants, needs, and locus of control. This latter component, as first described by Rotter (1966), is the degree to which an individual believes that he or she has total control and responsibility for all outcomes resulting from his or her conscious or unconscious decisions (Atman, 1981). People adopt one of two basic orientations: an internal position wherein the individual perceives success to be the result of ability and effort; or an external position which attributes success to luck, fate, or the actions of powerful others.

Many studies (e.g., Coleman, Campbell, Hobson, McPartland, Mood, Weinfield, & York, 1966; Crandall, Katkovsky, & Crandall, 1965; Nolwicki & Walker, 1974; Shaw & Uhl, 1971); have revealed a close relationship between students' sense of personal control and their learning outcomes. Specifically, an internal locus of control produces positive attitudes that lead to mastery and competent behavior. Identifying the relative internality and/or externality of a student not only provides evidence for personality and learning differences between children, but has also been documented as a possible predictor of academic success (Creek and McDonald, 1988).

Just as we would expect students with higher I.Q. Scores to outperform their lower scoring classmates, there is evidence to support the notion that internally oriented students outperform their externally oriented counterparts. This project explores the influence of each of these variables upon the reading and mathematics scores of 3rd, 4th, and 5th graders as measured by the California Achievement Tests.

In 1988, Creek and McDonald reported the results of a study designed to measure the respective influences of intelligence and locus of control upon the reading and mathematics achievement of middle school students. They found that the achievement test scores on the Iowa Test of Basic Skills were virtually identical for a group of non-gifted internal students and a group of gifted external students despite of 19 point difference in the mean I.Q. Score. This finding led the examiners to the conclusion that locus of control was as powerfully related to test results as was I.Q. Whether such results would hold true for younger students was problematic, since internality tends to correlate positively with chronological age.

Procedures

A group of 77 3rd, 4th, and 5th graders compromised the population for this study. Individual I.Q. Scores were on record and 34 of the 77 students had recorded I.Q. Scores of 130 or higher, placing them in the gifted category. All of the children were given the Nowicki-Strickland Locus of Control Scale for Children. The scale is a paper and pencil instrument containing 40 questions that are answered "yes" or "no." Higher scores indicate externality and lower scores represent internality. Students with scores higher than 13 were recorded as externals. Table 1 shows the distribution of students across four categories: Non-gifted internals; non-gifted externals; gifted internals; and gifted externals.

Table 1

Assessment of Locus of Control Using Nowicki-Strickland Scale

	Internals	Externals	Totals
	n	n	n
Non-Gifted	17	26	43
Gifted	15	19	34
Totals	32	45	77

Analysis of the Data

The data in Tables 2 and 3 reveal the mean IQ scores and locus of control scores for each group. An examination of the tables clearly establishes the fact that intelligence was not a function of locus of control, nor was internality a function of intelligence.

Table 2

Mean IQ Scores for Each Test Group

	Internals	Externals
Non Gifted	120 n=17	117 n=26
Gifted	141 n=15	140 n=19

Table 3

Mean Locus of Control Scores for each Test Group

	Internals	Externals
Non Gifted	9.9 n=17	18.4 n=26
Gifted	9.8 n=15	18.1 n=19

The next step was to examine the achievement test scores for each of the sub groups. Using the standard scores from the California Achievement Tests, an analysis of variance was employed to ascertain whether significant differences existed among the four groups. The mean scores for reading are found in Table 4 the analysis of the reading results appear in Table 5. The powerful main effects reveal significant differences in performance between gifted and non-gifted groups; and between internals and externals.

Table 4

Mean Reading Scores for Each Test Group

	Internals	Externals	Totals
Non Gifted	M 729.0 n=17	M 679.8 n= 26	M 699.3 n=43
Gifted	752.4 n=15	720.2 n=19	734.4 n=34
Totals	740.0 n=32	696.8 n=45	714.8 n=77

Table 5

Analysis of Variance of Reading Scores by IQ and Locus of Control

Source of Variation	Sum of Squares	DF	Mean Squares	F	Sig of F
Main Effects	55689.074	2	17844.537	15.284	.000*
IQ	20910.162	1	20910.162	11.477	.001*
LC	32261.497	1	32261.497	17.708	.000*
2-Way Interaction					
IQ x LC	1326.554	1	1326.554	.728	.396
Residual	132996.165	73	1821.865		
Total	190011.792	76	2500.155		

*significant at .05 level

The test scores and analyses for the mathematics section of the CAT mirror the reading test results. The scores and analyses appear in Tables 6 and 7.

Table 6

Mean Math Scores for Each Group

	Internals	Externals	Totals
	M	M	M
Non-Gifted	724.7	704.4	712.4
	n=17	n=26	n=43
Gifted	749.5	729.3	738.2
	n=15	n=19	n=34
Totals	736.3	714.9	723.7
	n=32	n=45	n=77

Table 7

Analysis of Variance of Math Scores by I.Q. and Locus of Control

Source of Variation	Sum of Squares	DF	Mean Squares	F	Sig of F
Main Effects	20235.660	2	10117.830	6.515	.002*
IQ	11687.880	1	11687.880	7.526	.008*
LC	7632.369	1	7632.369	4.915	.030*
2-Way Interaction					
IQ X LC	.080	1	.080	.000	.994
Residual	113363.714	73	1552.928		
Total	133599.455	76	1757.888		

*significant at .05 level

Table 8

T-Test for Gifted-Externals and Non-Gifted Internals

Group 1 - Group EQ 1: Gifted-Externals
Group 2 - Group EQ 2: Non-Gifted Internals

Variable	Number of Cases	Mean	Standard Deviation	T value	2-tail prob.
Reading					
Group 1	19	720.1579	43.532	-.66	.512
Group 2	17	729.0000	35.437		
Math					
Group 1	19	729.3158	53.241	.34	.733
Group 2	17	724.7059	22.483		

Table 9

T-Test for Gifted-Externals and Non-Gifted Externals

Group 1 - Group EQ 3: Gifted-Internals
Group 2 - Group EQ 4: Non-Gifted Externals

Variable	Number of Cases	Mean	Standard Deviation	T value	2-tail prob.
Reading					
Group 1	15	752.4000	40.678	4.98	.000*
Group 2	26	679.8077	47.171		
Math					
Group 1	15	749.4667	40.928	3.72	.001*
Group 2	26	704.4231	35.101		

*significant at .05 level

Having clearly established the superior test performance of the gifted and internal groups, all that remained was to confirm statistically the interactions between the gifted-externals and the non-gifted-internals; and the gifted internals and non-gifted externals. The results of the T-Tests employed to make these comparisons are found in Tables 8 and 9. Although Table 9 reveals significant differences in performance between gifted-internals and non-gifted externals, Table 8 produces no significant differences.

Conclusions

The data yielded in the test performance of the intermediate students supported the results of Creek and McDonald's (1988) findings with middle school students. The group of non-gifted internals with a mean IQ of 120 produced the same test results in reading and mathematics as The group gifted externals with a mean IQ of 140. It appears that the 20 point difference in IQ scores was offset by the 8.2 point difference in locus of control scores (Table 3). The data support Phares (1976) contention that "the importance of locus of control concept, to a large extent, lies in what it signifies about us as human beings. It tells us, through the force of accumulated research, that belief in personal control can have widespread, important, and desirable outcomes.

As we continue to attempt to identify variables that contribute to academic performance, it is instructive to recall Resnick's (Brandt, 1989) response to a question that was put to her about learning strategies. She said, "competence is much more holistic than we used to think....I'm inclined to believe that that sense of being in control, rather than any particular set of cognitive strategies, is what turns out to be general."

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